



88-2040A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Sandor Nagy et al.

Group Art Unit: 1713

Ser. No. 10/611,827

Examiner: Rip A. Lee

Filed: July 1, 2003

For: OLEFIN POLYMERIZATION PROCESS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

We, **SANDOR NAGY** and **KAREN NEAL-HAWKINS**, declare and say:

1. We are co-inventors of claims 1-18 of the above-identified patent application (Appl. Ser. No. 10/611,827, filed July 1, 2003), hereinafter "the '827 application";

2. We have reviewed the application as filed in the United States Patent & Trademark Office (USPTO). In addition, we have reviewed the reference cited by the Examiner, U.S. Pat. Appl. Publ. No. 2003/0004052 (published January 2, 2003), along with its corresponding U.S. Pat. No. 6,759,361 (issued July 6, 2004).

3. Prior to January 2, 2003, we conceived and actually reduced to practice in the United States the invention claimed in claims 1-18 of the '827 application. As evidence of the completion of the invention, we attach Exhibits A1 and A2, separately executed copies of Invention Disclosure No. C02-248, which we submitted to Equistar Chemicals, LP. Each of the dates removed from the documents is prior to January 2, 2003. The disclosure demonstrates olefin polymerizations using an indenoindolyl organometallic complex, an activator, and an aluminum phosphate support. The demonstrated process has improved catalyst

activity and the polyolefin has lower density indicating improved comonomer incorporation.

4. We further declare that all statements made in this declaration of our own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patents that would issue from it.

Further, declarants saith not.

Sandor Nagy
SANDOR NAGY, Ph.D.

Aug 09, 2004
DATE

Karen Neal-Hawkins
KAREN NEAL-HAWKINS

8/10/04
DATE

EQUISTAR**INVENTION and IDEA DISCLOSURE****EXHIBIT A1****CONFIDENTIAL**

To be Completed by Patent Department
 Disclosure No.: C-02-248
 Assigned to: Catalysts/JON
 Date Received:

DATE: _____

Inventions are new compositions, processes, and improvements thereof that relate to Equistar's current products or derivatives. They are believed to be patentable by the submitter. Ideas are anything that can add future value to Equistar. Here we want your ideas for new products, markets, business methods, radical or step-out opportunities, etc.

TITLE: Improved performance of STAR3B catalyst on alumophosphate supports

The purpose of this ID is to suggest aluminophosphates as promising supports for catalysts based on bridged Indeno-Indol complexes. The attached table indicates that catalysts prepared on this support (calcined at 250 or 600C) significantly improves the activity and efficiency of comonomer incorporation combined with a narrow MW distribution of the resulting resin (based on MFR and Er):

Table:
 Relative performance of STAR3.B catalyst on different supports
 (slurry deposition)

Catalyst: 0.01g (0.019 mmoles)/g support; Al/Zr=400
 Conditions: 70C, 350 psi C2, 100ml C6, 30 min; TiBAI

Calc. Temp. Support	Activity (g/g support)	Activity (g/g meta/ln)	MFR 1000	MFR 1000 1000	MFR 1000 1000	MFR 1000 1000	MFR 1000 1000	
250°C ES757	469.0	662.9	1.63	56.33	250		4.33	0.9244
250°C ES757	491.3	694.5	1.3	52.92	200			
600°C ES757	488.3	662.7	1.81	46.46	250	108.3	2.95	0.9214
600°C 948	569.0	707.8	1.23	53.90	250	107.1	3.29	0.9188
200°C Mont K-10	334.3	283.5	4.05	40.72	250		2.07	0.9263
250°C Al oxide	404.4	320.2	4.37	23.55	250		1.4	0.9209
600°C Al oxide	383.1	303.3	2.63	20.15	250		0.88	0.9161
250°C Al phosphate	1072.2	1030.7	4.55	27.54	250	107.1	1.16	0.9146
250°C Al phosphate	1240.2	1192.2	0.57	37.19	150			
600°C Al phosphate	1119.6	1076.3	4.7	30.32	250	106.3	1.29	0.9128
600°C Al phosphate	1166.0	1120.8	1.09	28.53	180			

Signature	Printed Name	Location/Phone	Date
<i>John N.</i>	S.Nagy	PRC	
	Karen Neal-Hawkins	CTC	

Read and understood by: *John N.* Date: _____

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EQUISTAR**INVENTION and IDEA DISCLOSURE****EXHIBIT A2****CONFIDENTIAL**

To be Completed by Patent Department
 Disclosure No.: C-02-248
 Assigned to: Catalyst/JON
 Date Received:

DATE:

Inventions are new compositions, processes, and improvements thereof that relate to Equistar's current products or derivatives. They are believed to be patentable by the submitter. Ideas are anything that can add future value to Equistar. Here we want your ideas for new products, markets, business methods, radical or step-out opportunities, etc.

TITLE: Improved performance of STAR3B catalyst on alumophosphate supports

The purpose of this ID is to suggest aluminophosphates as promising supports for catalysts based on bridged Indeno-Indol complexes. The attached table indicates that catalysts prepared on this support (calcined at 250 or 600C) significantly improves the activity and efficiency of comonomer incorporation combined with a narrow MW distribution of the resulting resin (based on MFR and Er):

Table
 Relative performance of STAR3B catalyst on different supports
 (slurry deposition)

Catalyst: 0.01g (0.019 mmol)g support; A/Z=400
 Conditions: 70C; 350 psi C2, 100ml CG, 30 min; TIBAI

Calc. Temp. Support	Reactivity (1000 hr ⁻¹ mole/liter)	Reactivity (1000 hr ⁻¹ mole/liter)	MFR	MFR	MFR	MFR	Eff.	Eff.	Activity (ml)
250°C EST57	469.0	662.9	1.63	96.93	250		4.33	0.9244	
250°C EST57	491.3	694.5	1.3	52.92	200				
600°C EST57	488.3	662.7	1.81	46.46	250	108.3	2.95	0.9214	
600°C 94B	569.0	707.8	1.23	53.90	250	107.1	3.29	0.9188	
250°C Mont K-10	334.3	283.5	4.05	40.72	250		2.07	0.9263	
250°C Al oxide	404.4	320.2	4.37	23.55	250		1.4	0.9209	
600°C Al oxide	383.1	303.3	2.63	20.15	250		0.89	0.9161	
250°C Al phosphate	1072.2	1030.7	4.55	27.54	250	107.1	1.16	0.9146	
250°C Al phosphate	1240.2	1192.2	0.57	37.19	150				
600°C Al phosphate	1119.6	1076.3	4.7	30.32	250	106.3	1.29	0.9128	
600°C Al phosphate	1166.0	1120.8	1.09	28.53	180				

Signature	Printed Name	Location/Phone	Date
<i>Karen Neal-Hawkins</i>	S.Nagy	PRC	
	Karen Neal-Hawkins	CTC	

Read and understood by: *Patricia K. O'Boyle* Date: _____

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